

## IMPROVED OPTICAL DESIGN FOR FILM CONVERSION DEVICE

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### Abstract of the Disclosure

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An illumination subsystem, a film guide subsystem, and an imaging subsystem are combined to form an optical system for a film conversion device which projects an image recorded on film onto the at least one optical sensor. The illumination subsystem comprises a lamp. The film guide subsystem comprises a film guide wide enough to support film moving thereover and having an aperture that permits passage of light from the lamp through the film. The imaging subsystem comprises an imaging lens and an optical sensor situated so as to receive the light passing through the aperture and the film. The three subsystems together have an optical path that is folded substantially into the shape of a "U". This folded arrangement is achieved by placing optical beam bending elements in the optical path of the film conversion device between the illumination subsystem and the film guide subsystem, and between the film guide subsystem and the imaging subsystem. This folded arrangement of the components of the optical system permits the components of the illumination subsystem and the imaging subsystem to be mounted back-to-back on the same support structure within the film-to-video module. Consequently, the optical system requires less space than is required without the folding of the optical path.

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